

CLAIMS

What is claimed is:

1. An apparatus for collecting blood clots, plaque, and other debris in arteries or veins, said apparatus comprising:
 - a filter assembly forming an elongated chamber;
 - a paddle assembly disposed in said chamber;
 - a porous floor disposed within and extending across said chamber; and
 - a means for coupling said filter assembly to an artery and to a vein.
2. The apparatus of claim 1, wherein:
 - said paddle assembly includes a rotatable axis and at least two paddles extending therefrom;
 - said paddles having a porous surface; and
 - said pores in said porous surface being micro pores.
3. The apparatus of claim 2, wherein said axis extends at a generally perpendicular angle from said porous floor and generally along the axis of said chamber.
4. The apparatus of claim 3, wherein:
 - said chamber is generally cylindrical having a proximal end and a distal end;
 - and
 - said porous floor is disposed adjacent to said distal end.
5. The apparatus of claim 4, wherein said porous floor is structured to allow blood to flow therethrough and to capture debris.
6. The apparatus of claim 5 wherein:
 - said filter assembly includes an anterior wall;
 - said anterior wall having a one-way valve structured to allow blood to flow into said chamber; and

said distal end includes a one-way valve structured to allow blood to flow out of said chamber.

7. The apparatus of claim 6 wherein:

said filter assembly includes an engine having a shaft and structured to produce rotation in said shaft; and

said shaft coupled to said axis whereby said axis is rotated.

8. The apparatus of claim 7 wherein said means for coupling said filter to an artery and a vein is in fluid communication with said anterior wall one-way valve and said distal end one-way valve.

9. The apparatus of claim 8, wherein said means for coupling said filter to an artery and a vein includes:

a guiding catheter in fluid communication with said artery;

a catheter Y-adaptor;

a three-way stopcock;

an inflow tube; and

said guiding catheter, catheter Y-adaptor, three-way stopcock and inflow tube structured to be in fluid communication with each other and said anterior wall one-way valve whereby fluid within said guiding catheter may travel through said Y-adaptor, three-way stopcock and inflow tube into said filter assembly.

10. The apparatus of claim 9 wherein said means for coupling said filter to an artery and a vein includes:

an outflow tube in fluid communication with said distal and one-way valve;

a venous Y-adaptor;

a venous sheath in fluid communication with said vein; and

said outflow tube, venous Y-adaptor, and venous sheath structured to be in fluid communication with each other whereby fluid in said filter assembly is returned to said vein.

11. The apparatus of claim 10 wherein:
said guiding catheter has a distal end structured to be inserted in said artery;
and
said distal end having an integral balloon.

12. A method of filtering thromboembolic debris from blood comprising the steps of:

- (a) providing a filter assembly having a chamber and a paddle assembly disposed in said chamber, said paddle assembly having a rotatable axis and at least two paddles extending therefrom;
- (b) providing a guideline catheter having an integral balloon;
- (c) inserting said catheter into a blood vessel;
- (d) coupling said guiding catheter to said filter assembly in fluid communication thereby allowing blood to flow through said filter assembly;
- (e) rotating said axis and paddles in blood in said chamber.

13. An apparatus for collecting blood clots, plaque, and other debris in arteries or veins, said apparatus comprising:

- a filter assembly forming an elongated chamber;
- said chamber having a spherical inner chamber;
- a paddle assembly disposed in said spherical inner chamber;
- said paddle assembly includes a rotatable axis and at least two paddles extending therefrom;
- a means for coupling said filter assembly to an artery and to a vein; and
- wherein said axis extends at a generally perpendicular to the axis of said chamber.

14. The apparatus of claim 13, wherein:
said paddles having a porous surface; and
said pores in said porous surface being micro pores.

15. The apparatus of claim 14, wherein said porous surface is structured to allow blood to flow therethrough and to capture debris.

16. The apparatus of claim 15 wherein:
said filter assembly includes an anterior wall;
said anterior wall having a one-way valve structured to allow blood to flow into said chamber; and
said distal end includes a one-way valve structured to allow blood to flow out of said chamber.

17. The apparatus of claim 16 wherein said filter assembly includes:
an engine having a shaft and structured to produce rotation in said shaft; and
said shaft coupled to said axis whereby said axis is rotated.

18. The apparatus of claim 17 wherein said means for coupling said filter to an artery and a vein is in fluid communication with said anterior wall one-way valve and said distal end one-way valve.

19. The apparatus of claim 18, wherein said means for coupling said filter to an artery and a vein includes:

a guiding catheter in fluid communication with said artery;
a catheter Y-adaptor;
a three-way stopcock;
an inflow tube; and

said guiding catheter, catheter Y-adaptor, three-way stopcock and inflow tube structured to be in fluid communication with each other and said anterior wall one-way valve whereby fluid within said guiding catheter may travel through said Y-adaptor, three-way stopcock and inflow tube into said filter assembly.

20. The apparatus of claim 19 wherein said means for coupling said filter to an artery and a vein includes:

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an outflow tube in fluid communication with said distal and one-way valve;
a venous Y-adaptor;
a venous sheath in fluid communication with said vein; and
said outflow tube, venous Y-adaptor, and venous sheath structured to be in fluid communication with each other whereby fluid in said filter assembly is returned to said vein.

21. The apparatus of claim 20 wherein:

said guiding catheter has a distal end structured to be inserted in said artery;

and

said distal end having an integral balloon.